

PENDING CLAIMS

1. (Previously Presented) A method of effectuating a neural-function in a patient, comprising:

selecting a stimulation site at the cortex of the patient where a change in an intrinsic, patient-specific neural-activity is suspected of occurring to carry out a particular physical function and/or cognitive function of the patient, wherein the intrinsic neural activity arises in association with a naturally occurring physiological process that facilitates at least partial functional recovery following neurologic damage;

positioning an electrode at the selected stimulation site; and

applying an electrical signal to the stimulation site via the electrode.

2. (Original) The method of claim 1 wherein:

the method further comprises providing a first listing containing a plurality of physical functions and/or cognitive functions and a second listing containing a plurality of neural-sites in the cortex where neural-activity is suspected to change to carry out a particular one of the physical functions and/or cognitive functions; and

selecting a stimulation site comprises identifying a physical function and/or cognitive function in the first listing that is correlated to an altered function of the patient, and determining a corresponding neural-site in the cortex of the patient in the second listing.

3. (Withdrawn) The method of claim 1 wherein selecting the stimulation site comprises choosing a stimulation site adjacent to an affected region of the cortex where neural-activity for carrying out an impaired function of the patient was performed before the patient experienced neurologic damage.

4. (Previously Presented) The method of claim 1 wherein, in a case in which the patient has experienced a stroke involving the primary motor cortex in the frontal lobe, the procedure of selecting a stimulation site comprises choosing a stimulation site at the premotor cortex and the procedure of positioning an electrode comprises placing an electrode in signal communication with the premotor cortex.

5. (Withdrawn) The method of claim 1 wherein, in a case in which the patient has experienced a stroke affecting the frontal lobe, the procedure of selecting a stimulation site comprises choosing a stimulation site at the supplementary motor cortex and the procedure of positioning an electrode comprises placing an electrode in signal communication with the supplementary motor cortex.

6. (Withdrawn) The method of claim 1 wherein, in a case in which the patient has expressive language disorders, the selecting procedure comprises choosing a stimulation site at Broca's area of the inferior frontal lobe of the cortex and the positioning procedure comprises placing an electrode in signal communication with Broca's area of the inferior frontal lobe of the cortex.

7. (Withdrawn) The method of claim 1 wherein, in a case in which the patient has language comprehension disorders, the selecting procedure comprises choosing a stimulation site at Wernicke's area of the parietal lobe of the cortex and the positioning procedure comprises placing an electrode in signal communication with Wernicke's area of the parietal lobe.

8. (Withdrawn) The method of claim 1 wherein, in a case in which the patient has learning and memory disorders, the selecting procedure comprises choosing the stimulation site at a medial temporal lobe of the cortex and the positioning procedure comprises placing the electrode in signal communication with the medial temporal lobe of the cortex.

9. (Withdrawn) The method of claim 1 wherein, in a case in which the patient has mood disorders, the selecting procedure comprises choosing the stimulation site to be in signal communication with a limbic system component and the positioning procedure comprises placing an electrode to be in signal communication with the limbic system component.

10-33. (Cancelled)

34. (Previously Presented) A method of effectuating a neural-function in a patient, comprising:

selecting a stimulation site comprising a region of the cortex of the patient where a change in an intrinsic, patient-specific neural-activity is expected to occur to carry out a function of the patient, wherein the intrinsic neural activity arises in association with a naturally occurring physiological process that facilitates at least partial functional recovery following neurologic damage;
applying an electrical stimulation directly to the stimulation site using an electrode implanted in the patient at a location proximate to the cortex of the patient.

35. (Original) The method of claim 34 wherein the function of the patient is a sense of smell, and wherein the stimulation site comprises a sensory region of the cortex related to the sense of smell.

36. (Original) The method of claim 34 wherein the function of the patient is associated with effectuating a sense of touch, and wherein the stimulation site comprises a sensory region of the cortex related to touch.

37. (Original) The method of claim 34 wherein the function of the patient is movement of a body part, and wherein the stimulation site comprises a motor region of the cortex related to movement of the body part.

38. (Original) The method of claim 34 wherein the function of the patient is cognitive processing, and wherein the stimulation site comprises a region of the cortex related to the cognitive processing.

39. (Original) The method of claim 34 wherein the function of the patient is memory, and wherein the stimulation site comprises a region of the cortex related to memory.

40. (Original) The method of claim 34 wherein the function of the patient has been impaired by damage to the cortex, and wherein selecting the stimulation site comprises choosing a stimulation site adjacent to the damaged region of the cortex where neural-activity for carrying out impaired function occurred before damage occurred to the cortex.

41. (Previously Presented) The method of claim 34 wherein the function of the patient has been impaired by a stroke affecting the frontal lobe of the premotor cortex in the brain of the patient, and wherein selecting a stimulation site comprises choosing a stimulation site at the premotor cortex anterior to the stroke in the frontal lobe.

42. (Previously Presented) The method of claim 34 wherein the function of the patient has been impaired by a stroke affecting the frontal lobe of the premotor cortex in the brain of the patient, and wherein selecting a stimulation site comprises choosing a stimulation site at the supplementary motor cortex.

43. (Previously Presented) A method of effectuating a neural-function in a patient, comprising:

selecting a stimulation site at the cortex of the patient where a change in an intrinsic, patient-specific neural-activity is suspected of occurring to carry out a particular physical function and/or cognitive function of the patient;

positioning an electrode at the selected stimulation site; and
applying an electrical signal to the stimulation site via the electrode, wherein the electrical signal is applied at a level below a level at which the neural-function is consistently triggered in response to the electrical signal itself.

44. (Cancelled)

45. (Previously Presented) A method of effectuating a neural-function in a patient, comprising:

exposing the patient to a peripheral stimulus expected to trigger a neural function;
selecting a stimulation site at the cortex of the patient where a change in an intrinsic, patient-specific neural-activity is suspected of occurring to carry out a particular physical function and/or cognitive function of the patient;
positioning an electrode at the selected stimulation site; and
applying an electrical signal to the stimulation site via the electrode.

46. (Previously Presented) The method of claim 45, wherein directing the patient to perform an activity occurs in association with selecting a stimulation site.

47. (Previously Presented) The method of claim 45 wherein directing the patient to perform an activity comprises directing the patient to perform a behavioral therapy in association with applying the electrical signal to the stimulation site.

48. (Previously Presented) The method of claim 45, wherein directing the patient to perform an activity comprises directing the patient to perform a behavioral therapy substantially coincident with applying the electrical signal to the stimulation site.

49. (Withdrawn) The method of claim 1, wherein the electrical signal is applied at a level below a level at which the neural-function is consistently triggered in response to the electrical signal itself.

50. (Withdrawn) The method of claim 1, further comprising directing the patient to perform a behavioral therapy in association with applying the electrical signal to the stimulation site.

51. (Withdrawn) The method of claim 1, further comprising directing the patient to perform a behavioral therapy substantially coincident with applying the electrical signal to the stimulation site.